DOCUMENT RESUME

ED 212 951 CG 015 745

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TITLE Contextual Factors in Adolescent Substance Use.
SPONS AGENCY National Inst. on Drug Abuse (DHHS), Rockville, Md. Div. of Research.
PUB DATE Aug 81
GRANT NIDA-AA-02560-01
NOTE 14p.; Paper presented at the Annual Convention of the American Psychological Association (89th, Los Angeles, CA, August 24-26, 1981).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adolescent Development; *Adolescents; *Age Differences; Alcoholic Beverages; Developmental Stages; *Drinking; Drug Use; Family Relationship; Group Dynamics; *Marihuana; Peer Relationship; Secondary Education; *Smoking; *Social Influences

ABSTRACT

Research on adolescent substance use has focused on prevalence and incidence; however, contextual factors have been largely ignored. A survey of 155 adolescents from a Minneapolis suburb was conducted to assess contextual factors affecting adolescent substance use. Subjects reported their use of alcohol, cigarettes, and marihuana with respect to where, when, and with whom each substance was used. Age was correlated with alcohol use at parties, in cars, at a friends' home, and in streets or parks. Age and alcohol use were associated with schoolmates, best friends, and nonschool friends, as well as with weekends and holidays or special occasions. Age and smoking were correlated with use at school, parties, or in cars. Cigarette use was associated with school friends, during school, and on holidays. Age and marihuana use were correlated with use at parties, in cars, at school, at friends' homes, and in streets or parks, as well as with school friends, nonschool friends, siblings, and best friends. Results showed strong relationship between age, substance use, and contextual factors. Among 12-13 year olds, alcohol was most widely used at home, while 16-17 year olds reported the most use at parties. Marihuana and age were most closely associated with use on weekends, holidays, special occasions, and during school. The findings suggest that problems of substance use and abuse should be interpreted within a larger framework. (NRB)

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CONTEXTUAL FACTORS IN ADOLESCENT SUBSTANCE USE[1]

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Presented at:

American Psychological Association Convention

Los Angeles, CA

August, 1981

[1]Supported by Grant DA/AA02560-01 from the National Institute on Drug Abuse.

CG 015745

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Much of the research in the area of adolescent substance use has focused upon such issues as the prevalence and incidence of drug use, attitudes about such use, etc. (e.g., Johnston, Bachman & O'Malley, 1979). Such frequency based data, as important as it is, tends to place substance use in a vacuum, as the causes, correlates, or consequences of such use are often not assessed.

Reviews of adolescent substance use often focus upon what might be termed "deviant use" or "drug abuse", in which any use of a particular substance is classified as abuse. For example, Braucht, et al (1973) reviewed psychosocial correlates of deviant adolescent drug use, focusing on alcohol, psychedelic drugs (marijuana, LSD and amphetamines) and narcotics, while Gorsuch and Butler (1976) assessed social psychological factors in initial drug abuse. Studies included in these general reviews did not deal with tobacco use (since cigarette use was not considered a form of drug abuse); moreover, the emphasis was on internal psychological factors, or external sociological factors affecting the adolescents use of alcohol and other drugs.

Much data has been collected and analyzed with respect to those factors affecting adolescent drug use (e.g., Blum & Richards, 1979; Kandel, 1978). However, one area which has not received much research attention has been that of the conditions of drug use (e.g., Crawford, 1975), or more specifically, the contextual factors of adolescent substance use. These factors indlude where a particular substance is used, with whom it is used, and when it is used. Aside from knowing the frequency with which a given substance is used, it is equally important to understand those factors that affect the controlled use of the substance. Recent work in the area of social controls and their influences on substance use (Maloff, et al, 1980) suggests that the use of a substance may be affected by a multitude of factors, many of which have not yet been systematically investigated. Indeed, Sadava(1975) has noted that the context of drug use has been largely overlooked in the research literature, and he suggested that such factors may be of vital importance in understanding the pervasiveness of drugs in a person's life.

Some research has provided intriguing clues into those contextual factors that affect patterns of substance use. Orcutt and Biggs (1975) have observed that the effects of marijuana and alcohol determine where these drugs will be used, as well as who will use them. They suggested "effect orientation" as a possible interpretation: externally oriented effects produced changes in interpersonal behavior, such as sociability and talkativeness, while internally oriented effects produced changes in intrapersonal experiences, such as an increase in abstract thinking, intensified hearing, etc. Thus, the effects of drugs cannot be disassociated from the situational contexts of drug use. Orcutt(1972) noted that while alcohol may be most commonly used at a cocktail party within the context of a group

experience, marijuana was often used in small gatherings to intensify personal experiences. A mere knowledge of the frequency of drug use would not provide the necessary understanding of the contextual factors so relevant to developing a complete picture of substance abuse behaviors.

Additional work has shown that there are social controls that function to establish limits on how particular substances are used. Zinberg, Jacobson & Harding (1975) noted that although there was some variation from user to user, there appeared to be several rules which operated to control marijuana use; these included never using the substance alone, using it rarely at school or work, not using with strangers, and using only in specific settings. Additional research (Zimmerman & Weider, 1977) focused on the smoking etiquitte of marijuana users, in which the marijuana was shared, the joint was passed from person to person, there appeared to be a committment to the social occasion, and one could get as stoned as one wanted.

In a preliminary attempt to more completely assess the contextual factors affecting adolescent substance use, this paper reports on patterns of adolescent substance use (alcohol, cigarettes and marijuana) as a function of age and context of use (where the substances were used, with whom, and when).

METHOD

Subjects: Letters were sent to 500 randomly selected subjects; 300 were junior high school students and 200 were senior high school students in a Minneapolis suburb. More junior high students were chosen due to the lesser degree of drug involvement in that population, and the need to obtain a sufficient number of users for the project. A letter explaining the project, and requiring the signature of parent(s) and adolescents was sent to the 500 families. Of these 500, 155 (adolescents and their parents) agreed to participate, a participant rate of 31%. Since a marjor part of the study was to be conducted in the home, and the adolescents were to be paid $5 for their participation, identification of subjects was essential. Loss of anonymity, as well as the complex nature of the study may have contributed to the low response rate. The adolescent subjects were comprised of 23% seventh graders (n = 35), 20% eighth graders (n = 31), 19% ninth graders (n = 29), 26% tenth graders (n = 41) and 12% eleventh graders (n = 19). Seniors were not surveyed, so as to maintain subject comparability with the National Institute on Drug Abuse studies which focus upon 12-17 year olds.

Instruments and Design:
Pre-test: To obtain a sufficient number of drug using students, a pre-test was administered to all 155 subjects. These students

were surveyed at their respective schools, in groups of 5-10. The pre-test consisted of 104 questions, including demographics, health concerns, health behaviors, and patterns of alcohol (beer, wine and liquor), cigarette and marijuana use. The format for the drug items was similar to that of Johnston, et al (1979), insofar as each substance was assessed based upon lifetime use, use within the last 12 months, and use within the last 30 days. Frequency intervals were modified from the Johnston, et al (1979) study; smaller intervals (none, 1-5, 6-10, 11-15, 16-20, 21-25, 26-30, over 30) were selected so as to provide a greater continuum of use, as well as to highlight changes in self-reported use in the different sites (school and home) of this study, since it was expected that changes in self-reported use might not be so apparent with larger response intervals.

Students who reported any use of alcohol (beer, wine, or liquor), cigarettes, or marijuana during the last 30 days were characterized as users; those who reported no use of any of these substances were characterized as non-users. This is a stringent criterion, yet it was necessary to avoid labeling students as users who had only used a substance perhaps only a few times in their lives, or who may have experimented within the past year. Based on this criterion, there were 73 users and 82 non-users. These 155 students were randomly assigned to one of four conditions:

Group I: surveys were administered to the student first at school (alone), and then 10-14 days later at home, with his/her parents completing their survey at the same time, but in another part of the house. (n = 36).

Group II: surveys were administered to the students at home, with his/her parents completing their survey at the same time in another part of the house, and then 10-14 days later, the student was given the survey at school (alone) (n = 38). Groups I and II served as a counterbalance.

Group III: a control group, completed their survey only at school, in a group of 3-5 students (n = 40).

Group IV: a second control group, completed their survey only at home, without their parent's involvement (n = 41).

The total survey package included a variety of questionnaires; this paper reports only on a small part of the total data, dealing with self-reported substance use and the context of such use. In addition to the questions of frequency of substance use, there were additional contextual questions dealing with: where the substances were used (at school, at home, at a friend's home, in a car, in a street or park, at a party), with whom the substances were used (alone, with a best friend, with school friends, with non-school friends, with parents, with brothers/sisters), and when the substances were used (before school, during school, after school, weekday evenings, weekends, holidays/special occasions).

These contextual questions were asked only for alcohol, cigarette and marijuana use, since these substances are the most commonly used in the 12-17 age group studied.

In all four groups, an interviewer was present to distribute the materials, to describe the project, to collect the completed forms (and to check for missing data) and to answer any questions. The time needed to complete the surveys was about 75 to 90 minutes.

RESULTS

ALCOHOL:

Among the 12-13 year olds, alcohol was most widely used at home (33%), while 16-17 year olds reported the most use at a party (70%). Age was most strongly correlated with alcohol use at a party, and to a lesser extent in a car, at a friend's home, or a street/park. Interestingly, none of the subjects reported using alcohol at school.

Age and alcohol use was further associated with the adolescents school friends, their best friends, and nonschool friends. It is important to note that age was negatively correlated with the adolescents's alcohol use with their parents; of the 12-13 year olds, 26% reported drinking with their parents, among the 14-15 years olds the comparable figure was 29%, but only 10% among the 16-17 year olds.

Table 1 about here

Age and alcohol use were strongly correlated with weekends and holidays/special occasions.

If a typical picture is to be drawn of the relationship of alcohol use and contextual factors, it appears that 12-13 year olds are most likely to use alcohol at home, with their parents, on holidays/special occasions. The 14-15 year olds report alcohol use at home or a friend's home, with parents, best friend or school friend, on holidays/special occasions or weekends. The 16-17 year olds report alcohol use at a party or friend's home, with school friends or best friends, on weekends or holidays/special occasions.

Several surprising phenomena appeared in the data. That alcohol use in a car was reported by 24% of the 16-17 year olds is an important finding, insofar as it relates to the consequences of alcohol use with respect to driving while intoxicated. Second, the role of nonschool friends and brothers and sisters suggests that influences (or models) of alcohol use may extend beyond the parents and the student's peer groups at school.

CIGARETTES:

Fewer students smoked than drank; nevertheless, age and cigarette use were positively correlated with use at school, at a party, or in a car.

Table 2 about here

Cigarette use was most often associated with school friends, during school or on holidays. The 12-13 year olds most often reported smoking in a street or park, with their best friends on weekends; the 14-15 year olds most often reported smoking at a friend's home, a street or park, with friends from school mostly on weekends. The older 16-17 year olds smoked most often at a party, with school friends on weekends.

MARIJUANA:

Age and marijuana use were positively correlated with use at a party, in a car, at school, at a friend's home or in a street/park. In terms of who marijuana was used with, the strongest associations were school friends, nonschool friends, brothers/sisters, and best friends. Finally, marijuana and age were most closely associated with use on weekends, holidays and special occasions, and during school.

Table 3 about here

The 12-13 year olds most often reported marijuans use in a street/park or friend's home, with best friends, mostly on weekends. The 14-15 year olds reported marijuana use at a party or friend's home, with best friends or school friends, mostly on weekends. The oldest adolescents, 16-17, reported marijuana use most often at a party, with friends from school, on weekends.

As with alcohol use, some interesting findings occurred. First, among the 16-17 years olds, 22% reported using marijuana in a car, and 10% reported marijuana use with their brothers/sisters. Second, most of the reported marijuana use apparently occurs during weekends, very little is reported during school.

Although many of the correlations are statistically significant, it should be emphasized that the small number of subjects in some of the categories makes such correlations difficult to interpret. Consequently, such data should be taken only as a preliminary attempt to explore some of the contextual factors affecting adolescent substance use, and should not be over interpreted.

DISCUSSION

It is apparent from this study that the traditional measures of prevalence/incidence of substance use are limited in their ability to describe fully the developmental changes that affect adolescents and their use of various substances.

Much research has investigated the role of peer pressure insofar as it affects adolescent substance use; yet it is clear from this study thar family factors (parents and siblings) play a role in all three substances surveyed. The youngest adolescents (12-13) most often reported drinking alcohol with their parents, while the oldest adolescents (16-17) were least likely to drink with their parents. While there was no reported use of cigarettes or marijuana with parents, there were significant positive correlations between age and substance use with brother/sisters, the oldest adolescents (16-17) reporting the greatest use with siblings. It may be that adolescents may model their use based on family and peers (e.g., Brook, et al, 1977); nevertheless, unless it is recognized that such processes may be different for adolescents during the ages 12-17, only a simplistic interpretation will be developed. Although the sample sizes are small, the data suggests, for example, that the role of parents is quite different for alcohol use in the 12-13 and 16-17 age groups. Similarly, changes in friendships as a function of age (perhaps due to changes in schools, increased mobility due to driving, etc.) play an important role in determining the patterns of friendships that may develop during adolescence.

That alcohol and marijuana is reportedly use in a car by nearly 25% of the 16-17 year olds suggests that their substance use may be part of a larger syndrome of adolescent problem behavior (e.g., Jessor, et al, 1980). One interpretation which may account for some of these problems has been developed by Harding and Zinberg(1977) who have suggested that licit drugs, such as alcohol, may have more controlling rituals surrounding its use than would illicit drugs, such as marijuana. Alcohol use may be limited to specific occasions or circumstances; moreover, there may be acceptable models for alcohol users. On the other hand, illicit drugs may have no acceptable models, since all use is virtually prohibited, and the illicit drug user may simply have no way of learning what might be described as acceptable drug use. This is an important point, reflected even in surveys of drug abuse, where often someone who has used an illicit substance only one time is identified as a drug user/abuser. Because of the problems in drug abuse survey research (e.g., Sadava, 1975; Hochhauser, 1979), there may be a tendency to overestimate the actual degree of substance abuse. If an adolescent uses alcohol at home, with his/her parents, on a holiday, should that use be comparable to an adolescent who uses alcohol in a car with his/her best friends on a weekend?

These findings on contextual factors in adolescent substance along with those on factors of set and setting (Zinberg & Robertson,

1972; Zinberg & Fraser, 1979) suggest strongly that problems of substance use and abuse be interpreted within a larger framework. Not only do contextual factors have an important role to play in understanding the prevalence/incidence of substance use behaviors, but in the prevention and treatment of such problems as well.

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ALCOHOL USE

Age

CONTEXT:	12-13 (N=42) %	n	14-15 (N=63) %	n	16-17 (N=50) %	n	r	p
Where								
School	0.0	(0)	0.0	(0)	0.0	(0)	-----	----
Home	33.3	(14)	34.9	(22)	20.0	(10)	-.126	.057
Friends home	11.9	(5)	30.2	(19)	40.0	(20)	.21	.004
Car	0.0	(0)	6.3	(4)	24.0	(12)	.29	.0001
Street/park	7.1	(3)	8.1	(5)	24.0	(12)	.205	.005
Party	11.9	(5)	23.8	(15)	70.0	(35)	.46	.00001
With whom								
Alone	7.1	(3)	9.5	(6)	0.0	(0)	-----	----
Best friend	16.7	(7)	25.4	(16)	48.0	(24)	.278	.0002
School friend	4.8	(2)	27.0	(17)	68.0	(34)	.486	.00001
Nonschool fr	7.1	(3)	11.1	(7)	32.0	(16)	.238	.001
Parents	26.2	(11)	28.5	(18)	10.0	(5)	-.138	.043
Bros/Sis	4.8	(2)	6.3	(4)	16.0	(8)	.153	.027
When								
Before school	0.0	(0)	0.0	(0)	0.0	(0)	-----	----
During school	0.0	(0)	0.0	(0)	2.0	(1)	.080	----
After school	7.1	(3)	3.2	(2)	0.0	(0)	-.182	.011
Weekday eve	4.8	(2)	8.1	(5)	4.0	(2)	-.047	----
Weekends	21.4	(9)	33.3	(21)	68.0	(34)	.351	.00001
Holidays/ Special occ	30.9	(13)	44.4	(28)	56.0	(28)	.218	.003

Table 1: Self-reported alcohol use as a function of age and context

CIGARETTE USE

	Age 12-13 (N=42)		14-15 (N=63)		16-17 (N=50)		r	p
CONTEXT	%	n	%	n	%	n		
Where								
School	0.0	(0)	4.8	(3)	14.0	(7)	.26	.0005
Home	9.5	(4)	11.1	(7)	8.0	(4)	.01	----
Friend's home	9.5	(4)	15.9	(10)	14.0	(7)	-.072	----
Car	0.0	(0)	9.5	(6)	16.0	(8)	.25	.0008
Street/park	19.0	(8)	14.3	(9)	16.0	(8)	.00	----
Party	2.4	(1)	12.7	(8)	22.0	(11)	.26	.0005
With whom								
Alone	9.5	(4)	12.7	(8)	16.0	(8)	.123	.063
Best friend	16.7	(7)	12.7	(8)	14.0	(7)	.01	----
School friends	4.8	(2)	22.2	(14)	18.0	(9)	.16	.02
Nonschool friends	7.1	(3)	9.5	(6)	12.0	(6)	.077	----
Parents	0.0	(0)	3.2	(2)	0.0	(0)	.032	----
Brothers/Sisters	7.1	(3)	6.3	(4)	14.0	(7)	.121	.065
When								
Before school	4.8	(2)	3.1	(2)	6.0	(3)	.061	----
During school	0.0	(0)	3.1	(2)	12.0	(6)	.232	.001
After school	9.5	(4)	9.5	(6)	14.0	(7)	.069	----
Weekday evenings	11.9	(5)	9.5	(6)	16.0	(8)	.077	----
Weekends	14.3	(6)	23.8	(15)	22.0	(11)	.098	----
Holidays/special occasions	9.5	(4)	8.1	(5)	14.0	(7)	.141	.04

Table 2: Self-reported cigarette use as a function of age and context

MARIJUANA USE

CONTEXT	Age 12-13 (N=42) %	n	14-15 (N=63) %	n	16-17 (N=50) %	n	r	p
Where								
School	0.0	(0)	1.6	(1)	14.0	(7)	.253	.0007
Home	0.0	(0)	3.2	(2)	4.0	(2)	.104	----
Friend's home	4.8	(2)	11.1	(7)	24.0	(12)	.233	.001
Car	2.4	(1)	8.1	(5)	22.0	(11)	.261	.0001
Street/park	4.8	(2)	9.5	(6)	22.0	(11)	.204	.005
Party	2.4	(1)	12.7	(8)	42.0	(21)	.407	.00001
With whom								
Alone	0.0	(0)	1.6	(1)	2.0	(1)	.073	----
Best friend	9.5	(4)	15.8	(10)	22.0	(11)	.175	.014
School friends	2.4	(1)	15.8	(10)	44.0	(22)	.406	.00001
Nonschool friends	2.4	(1)	6.3	(4)	22.0	(11)	.247	.0009
Parents	0.0	(0)	0.0	(0)	0.0	(0)	----	----
Brothers/Sisters	0.0	(0)	3.2	(2)	10.0	(5)	.216	.003
When								
Before school	0.0	(0)	0.0	(0)	4.0	(2)	.154	.027
During school	0.0	(0)	3.2	(2)	8.0	(4)	.20	.006
After school	0.0	(0)	3.2	(2)	6.0	(3)	.156	.026
Weekday evenings	2.4	(1)	3.2	(2)	10.0	(5)	.128	.055
Weekends	9.5	(4)	20.6	(13)	46.0	(23)	.346	.0001
Holidays/special occasions	0.0	(0)	6.3	(4)	22.0	(11)	.295	.0001

Table 3: Self-reported marijuana use as a function of age and context